

## Data Sheet

**Customer:**

**Product:** Wire Wound Leaded Resistors – KNP Series

**Sizes.:** 0932/1145/1550/1760/2480

**Issued Date:** 4-May-22

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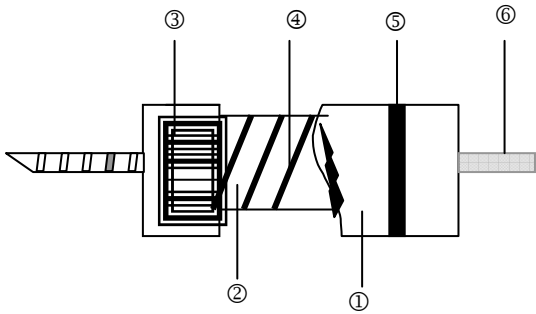
| Produced by<br>(QC) | Checked<br>(QC)  | Approved by<br>(QC) | Prepared by<br>(Sales) | Accepted by<br>(Customer) |
|---------------------|------------------|---------------------|------------------------|---------------------------|
| 4-May-22            | 4-May-22         | 4-May-22            | 4-May-22               |                           |
| <i>Mandy Chen</i>   | <i>Ben Chang</i> | <i>Ben Chang</i>    |                        |                           |

## Wire Wound Leded Resistors

### Scope

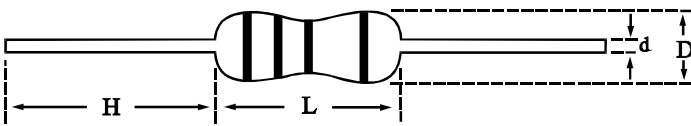
This KNP type standard specification is for use in consumer electronics computer, telecommunication equipments, etc

### Construction



|   |                                     |   |                                     |
|---|-------------------------------------|---|-------------------------------------|
| ① | Non-flame Paint With Sol Vent-proof | ④ | Copper-Nickel Alloy Wire Wound Film |
| ② | Ceramic Rod                         | ⑤ | Marking                             |
| ③ | End Cap                             | ⑥ | Lead Wire                           |

### Dimensions



| Type | L        | D       | H      | d         |
|------|----------|---------|--------|-----------|
| 0932 | 9.0±0.5  | 3.2±0.5 | 26±2.0 | 0.53~0.68 |
| 1145 | 11.5±1.0 | 4.5±0.5 | 35±2.0 | 0.73~0.80 |
| 1550 | 15.5±1.0 | 5.0±0.5 | 32±2.0 | 0.73~0.80 |
| 1760 | 17.5±1.0 | 6.0±0.5 | 32±2.0 | 0.73~0.80 |
| 2480 | 24.5±1.0 | 8.0±0.5 | 38±3.0 | 0.73~0.80 |

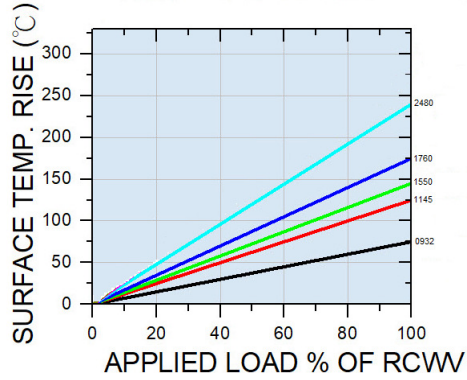
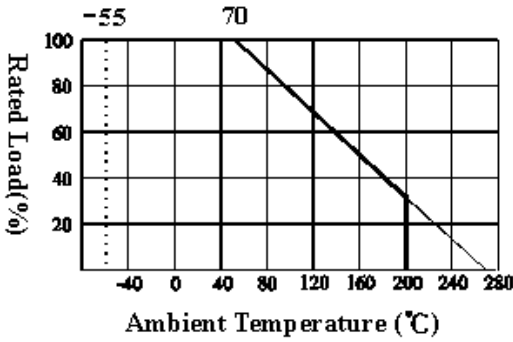
### Part Numbering

| KNP          | 0932  | J                    | A                                    | H            | U  | 1000  |
|--------------|---|----------------------|--------------------------------------|--------------|--|---|
| Product Type | Dimensions (LxD)  | Resistance Tolerance | Packaging Code                       | TCR (PPM/°C) | Power Rating   | Resistance  |
|              | 0932: 9.0x3.2<br>1145: 11.5x4.5<br>1550: 15.5x5.0<br>1760: 17.5x6.0<br>2480: 24.5x8.0 | F: ±1%<br>J: ±5%     | A: Ammo<br>B: Bulk<br>T: Taping Reel | H: ±400      | U: 1/2W<br>T: 1W<br>S: 2W<br>R: 3W<br>D: 5W<br>E: 7W | R100: 0.1Ω<br>0010: 1Ω<br>0100: 10Ω<br>1000: 100Ω |

**Wire Wound Led Resistors**

**Derating Curve**

**Hot-Spot Temperature**



**Standard Electrical Specifications**

| Item Type | Power Rating at 70°C | Operating Temp. Range | Dielectric Withstanding Voltage | Resistance Range |           | TCR (±PPM/°C) |
|-----------|----------------------|-----------------------|---------------------------------|------------------|-----------|---------------|
|           |                      |                       |                                 | ±1%              | ±5%       |               |
| 0932      | 1/2W                 | -55 ~ +200°C          | 300V                            | 1Ω~150Ω          | 0.1Ω~150Ω | ±400          |
| 1145      | 1W                   |                       | 300V                            | 1Ω~470Ω          | 0.1Ω~470Ω |               |
| 1550      | 2W                   |                       | 400V                            | 1Ω~470Ω          | 0.1Ω~470Ω |               |
| 1760      | 3W                   |                       | 400V                            | 1Ω~470Ω          | 0.1Ω~470Ω |               |
| 2480      | 5W                   |                       | 400V                            | 1Ω~560Ω          | 0.1Ω~560Ω |               |

Value Range for standard resistance, below or over this resistance on request. Special TCR by request.

**High Power Rating Electrical Specifications**

| Item Type | Power Rating at 70°C | Operating Temp. Range | Dielectric Withstanding Voltage | Resistance Range |           | TCR (±PPM/°C) |
|-----------|----------------------|-----------------------|---------------------------------|------------------|-----------|---------------|
|           |                      |                       |                                 | ±1%              | ±5%       |               |
| 0932      | 1W                   | -55 ~ +200°C          | 300V                            | 1Ω~150Ω          | 0.1Ω~150Ω | ±400          |
| 1145      | 2W                   |                       | 300V                            | 1Ω~470Ω          | 0.1Ω~470Ω |               |
| 1550      | 3W                   |                       | 400V                            | 1Ω~470Ω          | 0.1Ω~470Ω |               |
| 1760      | 5W                   |                       | 400V                            | 1Ω~470Ω          | 0.1Ω~470Ω |               |
| 2480      | 7W                   |                       | 400V                            | 1Ω~560Ω          | 0.1Ω~560Ω |               |

Value Range for standard resistance, below or over this resistance on request. Special TCR by request.

Resistor body color : Grey or Pink are available

**Environmental Characteristics**

| Item                            | Specification                           | Test Method  |
|---------------------------------|---|--|
| Short Time Overload             | ±(2%+0.05Ω)                             | JIS-C-5201-1 5.5<br>RCWV*2.5 or Max Overloading Voltage · 5 seconds              |
| Temperature Coefficient         | By Type                                 | Resistance value at room temperature and room temperature+100°C                  |
| Dielectric Withstanding Voltage | By Type                                 | JIS-C-5201-1 5.7<br>In V-Block for 1 minute                                      |
| Insulation Resistance           | > 100MΩ                                 | JIS-C-5201-1 5.6<br>In V-Block for 1 minute                                      |
| Load Life                       | ±(5%+0.05Ω)                             | JIS-C5201-1 7.10<br>RCWV · 70°C · RCWV for1000hrs<br>(1.5hrs.on · 0.5hrs.off)    |
| Humidity ( Steady State )       | ±(5%+0.05Ω)                             | JIS-C5201-1 7.9<br>40±2°C , 90~95%RH,RCWV for1000hrs<br>(1.5hrs.on · 0.5hrs.off) |
| Solderability                   | 95% Min. Coverage                       | JIS-C5201-1 6.5<br>260°C±5°C,2±0.5 (sec)   |
| Terminal Strength               | Tensile: ≥2.5kg                         | Direct Load for 10 sec.<br>In the direction off the terminal leads.              |
| Resistance to Solvent           | No abnormality in coatings and markings | IPA for 5±0.5 Min. with ultrasonic   |

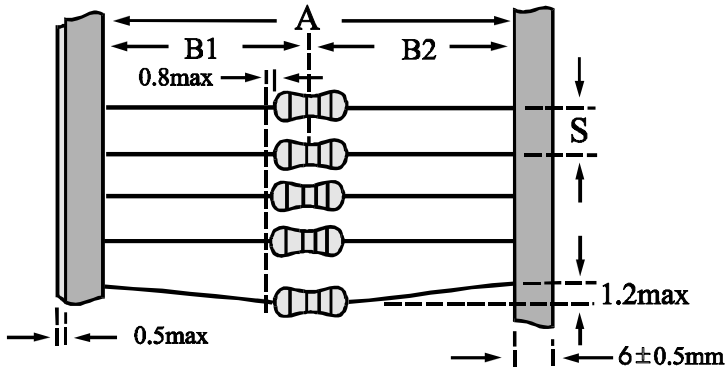
Storage Temperature :15~28°C; Humidity <80%RH

**Wire Wound Led Resistors**

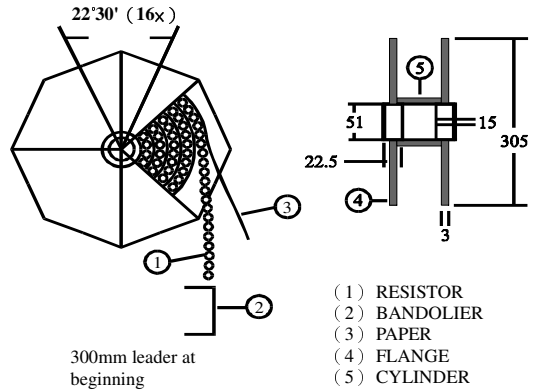
**Taping/Packing Specifications**

**1. Standard Type (Reel & Ammo)**

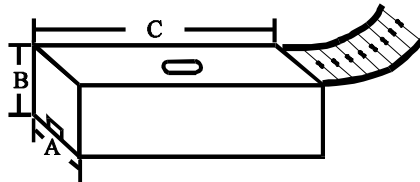
Packing Methods



Reel Packing



Ammo Packing

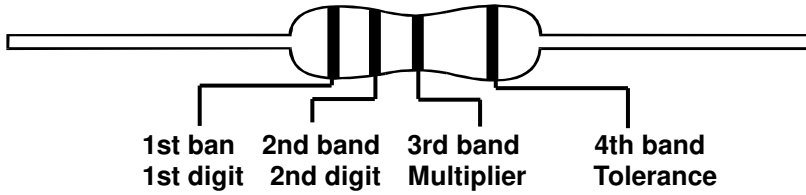


Unit: mm

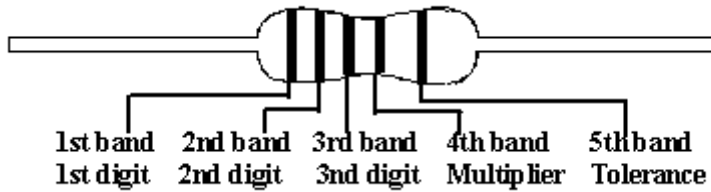
| Packaging Type | Packing Methods |       |        | Reel Packing      |       | Ammo Packing |      |       |       |
|----------------|-----------------|-------|--------|-------------------|-------|--------------|------|-------|-------|
|                | A               | B1-B2 | S      | Across Flange (A) | Qty   | A            | B    | C     | Qty   |
| 0932           | 52+1/-0         | 1.2   | 5±0.3  | 72                | 2,500 | 79±2         | 58±3 | 257±5 | 1,000 |
| 1145           | 52+1/-0         | 1.5   | 5±0.3  | 95                | 2,000 | 103±2        | 82±3 | 262±5 | 1,000 |
|                | 73+1/-0         |       |        |                   |       |              |      |       |       |
| 1550           | 52+1/-0         | 1.5   | 10±0.8 | 95                | 1,000 | 103±2        | 96±3 | 265±5 | 1,000 |
|                | 73+1/-0         |       |        |                   |       |              |      |       |       |
| 1760           | 52+1/-0         | 1.5   | 10±0.8 | 95                | 1,000 | 103±2        | 82±3 | 262±5 | 500   |
|                | 73+1/-0         |       |        |                   |       |              |      |       |       |
| 2480           | 88+1/-0         | 1.5   | 10±0.8 | 110               | 500   | 115±2        | 73±3 | 265±5 | 250   |

**Wire Wound Led Resistors**

**■ Marking & Resistance Tolerance**



|       |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ±5.0% | E-24 | 1.0 | 1.1 | 1.2 | 1.3 | 1.5 | 1.6 | 1.8 | 2.0 | 2.2 | 2.4 | 2.7 | 3.0 | 3.3 | 3.6 | 3.9 | 4.3 | 4.7 | 5.1 | 5.6 | 6.2 | 6.8 | 7.5 | 8.2 | 9.1 |
|-------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|



|       |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| ±1.0% | E-96 | 1.00 | 1.02 | 1.05 | 1.07 | 1.10 | 1.13 | 1.15 | 1.18 | 1.21 | 1.24 | 1.27 | 1.30 | 1.33 | 1.37 | 1.40 | 1.43 | 1.47 | 1.50 | 1.54 | 1.58 | 1.62 | 1.65 | 1.69 | 1.74 |
|       |      | 1.78 | 1.82 | 1.87 | 1.91 | 1.96 | 2.00 | 2.05 | 2.10 | 2.15 | 2.21 | 2.26 | 2.32 | 2.37 | 2.43 | 2.49 | 2.55 | 2.61 | 2.67 | 2.74 | 2.80 | 2.87 | 2.94 | 3.01 | 3.09 |
|       |      | 3.16 | 3.24 | 3.32 | 3.40 | 3.48 | 3.57 | 3.65 | 3.74 | 3.83 | 3.92 | 4.02 | 4.12 | 4.22 | 4.32 | 4.42 | 4.53 | 4.64 | 4.75 | 4.87 | 4.99 | 5.11 | 5.23 | 5.36 | 5.49 |
|       |      | 5.62 | 5.76 | 5.90 | 6.04 | 6.19 | 6.34 | 6.49 | 6.65 | 6.81 | 6.98 | 7.15 | 7.32 | 7.50 | 7.68 | 7.87 | 8.06 | 8.25 | 8.45 | 8.66 | 8.87 | 9.09 | 9.31 | 9.53 | 9.76 |

| Color   | Digit | Multiplier       | Tolerance |
|---------|-------|------------------|-----------|
| Without | -     | -                | -         |
| Silver  | -     | 10 <sup>-2</sup> | -         |
| Gold    | -     | 10 <sup>-1</sup> | ±5.0%     |
| Black   | 0     | 10 <sup>0</sup>  | -         |
| Brown   | 1     | 10 <sup>1</sup>  | ±1.0%     |
| Red     | 2     | 10 <sup>2</sup>  | -         |
| Orange  | 3     | 10 <sup>3</sup>  | -         |
| Yellow  | 4     | 10 <sup>4</sup>  | -         |
| Green   | 5     | 10 <sup>5</sup>  | -         |
| Blue    | 6     | 10 <sup>6</sup>  | -         |
| Violet  | 7     | 10 <sup>7</sup>  | -         |
| Grey    | 8     | 10 <sup>8</sup>  | -         |
| White   | 9     | 10 <sup>9</sup>  | -         |

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